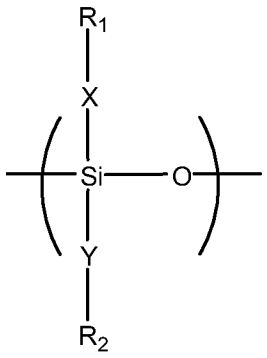
In the Claims

The following Listing of Claims replaces all prior versions in the application:

LISTING OF CLAIMS

1. (Currently Amended) ~~The use of~~ A method for detecting the presence of at least one nitro compound in a medium, comprising:

contacting said medium with a sensor comprising a substrate having two faces, wherein at least one of the two faces is covered with a sensitive material having at least one physical property which is modified on contact with nitro compounds, wherein said sensitive material is at least one polymer comprising at least one siloxane repeating unit corresponding to the general formula (I) below:



(I)

in which:

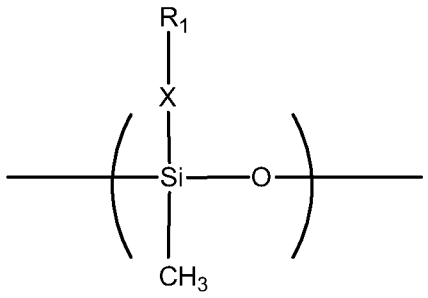
X and Y, which may be identical or different, represent a single bond or a saturated or unsaturated, linear hydrocarbon group containing from 1 to 50 carbon atoms;

R_1 and R_2, which may be identical or different, represent a hydrogen atom, a CN group, a group $C(Z)_3$, $CH(Z)_2$ or CH_2Z with Z representing a halogen atom; an NH_2 group, a group NHR_3 or NR_3R_4 with R_3 and R_4 representing, independently of each other, a halogen atom, a methyl group or a linear or branched, saturated or unsaturated hydrocarbon chain containing from 2 to 20 carbon atoms and possibly one or more heteroatoms and/or one or more chemical functions comprising at least one heteroatom; on condition, however, that at least one from among R_1 and R_2 is not a hydrogen atom;

or ~~of~~ a composite comprising ~~this~~ said polymer and one or more electrically conductive fillers, ~~as sensitive material in a sensor for detecting one or more nitro compounds~~ said sensor providing a first response when no nitro compounds are present in the medium and providing a second different response when at least one nitro compound is present in the medium, said second different response corresponding to a modification of the physical property of the sensitive material on contact with the nitro compound;

measuring a change in the response of the sensor and correlating the change of response to the presence of the nitro compound in the medium.

2. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the siloxane repeating unit corresponds to the ~~particular~~ formula (Id) below:



(Id)

in which X is a saturated or unsaturated linear hydrocarbon group containing from 1 to 50 carbon atoms, while R_1 has the same meaning as above.

3. (Currently amended) The ~~use as claimed in~~ method of claim 2, in which, in the ~~particular~~ formula (Id), X represents an alkylene chain containing from 2 to 10 carbon atoms.

4. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the siloxane repeating unit is trifluoropropylmethylsiloxane or cyanopropylmethylsiloxane.

5. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the polymer is chosen ~~from~~ in the group consisting of polytrifluoropropylmethylsiloxanes and polycyanopropylmethylsiloxanes.

6. (Currently amended) The ~~use as claimed in~~ method of claim 5, in which the polymer has an average molecular weight ranging from 50 to 100 000.

7. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the conductive filler(s) of the composite is(are) chosen ~~from~~ in the group consisting of carbon black particles and metal and metal oxide powders.

8. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the polymer or the composite is ~~used~~ in the form of a thin film covering one or both faces of [[a]] the substrate.

9. (Currently amended) The ~~use as claimed in~~ method of claim 8, in which the thin film is from 10 angstroms to 100 microns thick.

10. (Currently amended) The ~~use as claimed in~~ method of claim 8, in which the thin film is prepared via a technique chosen ~~from~~ in the group consisting of spraying, spin coating, drop coating, dip coating, the Langmuir-Blodgett technique, electroplating and *in situ* polymerization of a precursor monomer of the polymer.

11. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the ~~detection of the nitro compound(s) by the chemical sensor is performed by measuring a variation in~~ physical property of the sensitive material which is modified on contact with the nitro compound is the mass of the polymer or the electrical conductivity of the composite.

12. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the sensor is a gravimetric sensor.

13. (Currently amended) The ~~use as claimed in~~ method of claim 12, in which the sensor is a quartz microbalance sensor.

14. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the sensor is a resistive sensor.

15. (Currently amended) ~~The use as claimed in claim 1, in which the sensor is a microsensor that comprises one or more gravimetric sensors and/or one or more resistive sensors, at least one of these sensors comprising a polymer or a composite as defined above.~~

16. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the nitro compound~~(s)~~ to be detected is~~(are)~~ chosen ~~from~~ in the group consisting of nitroaromatic compounds, nitroamines, nitrosamines and nitric esters.

17. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the nitro compound~~(s)~~ to be detected is~~(are)~~ in solid, liquid or gaseous form.

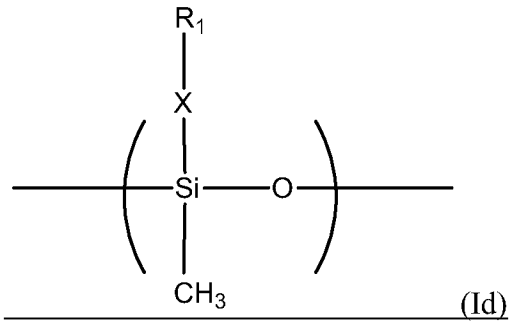
18. (Currently amended) The ~~use as claimed in~~ method of claim 1, in which the nitro compound to be detected is~~(are)~~ chosen ~~from~~ in the group consisting of nitrobenzene, dinitrobenzene, trinitrobenzene, nitrotoluene, dinitrotoluene, trinitrotoluene, dinitrofluorobenzene, dinitrotrifluoromethoxybenzene, aminodinitrotoluene, dinitrotrifluoromethylbenzene, chlorodinitrotrifluoromethylbenzene, hexanitrostilbene, trinitrophenylmethylnitramine and trinitrophenol.

19. (Currently amended) The ~~use as claimed in~~ method of claim 1, ~~for detecting~~ in which the nitro compound to be detected is a component of explosives.

20. (New) A method for detecting the presence of at least one nitro compound in a medium, comprising:

contacting said medium with a sensor comprising a substrate having two faces, wherein at least one of the two faces is covered with a sensitive material having at least one physical property which is modified on contact with nitro compounds, wherein said sensitive material is

at least one polymer comprising at least one siloxane repeating unit corresponding to the formula (Id) below:



(Id)

in which:

X is a saturated or unsaturated linear hydrocarbon group containing from 1 to 50 carbon atoms,

R_1 represents a hydrogen atom, a CN group, a group $C(Z)_3$, $CH(Z)_2$ or CH_2Z with Z representing a halogen atom;

or a composite comprising said polymer and one or more electrically conductive fillers,

said sensor providing a first response when no nitro compounds are present in the medium and providing a second different response when at least one nitro compound is present in the medium, said second different response corresponding to a modification of the physical property of the sensitive material on contact with the nitro compound;

measuring a change in the response of the sensor and correlating the change of response to the presence of the nitro compound in the medium.